Sauget Area 2 Sites Group

June 4th, 2001

Mr. Mike McAteer U.S. EPA - Region 5 77 West Jackson Boulevard (SR-6J) Chicago, Illinois 60604-3590

RE: Sauget Area 2 Sites

Deliver by Overnight Mail

Dear Mike:

Solutia has found a 1988 report written by Geraghty & Miller entitled an "Assessment of an Old Lagoon at the American Bottoms Treatment Plant" which was done on behalf of the Sauget Sanitary Development and Research Association. (Copy attached.) Frankly I had forgotten this work was done until it was recently drawn to my attention. (During 1988 I was working for the Village on the start-up of the American Bottoms Treatment Facility.)

In reviewing this document I find that this was in-fact a study of Site S to define its boundaries and characterize the fill material. The report is significant since its 23 boring logs and two waste samples provide important background information and definition to Site S. I suggest we modify Section 3.5 of Volume 1 of the SSP (Previous Site Investigations, Site S) and add this Site S assessment as Appendix 6 to Volume 1. I will forward the modified Section 3.5 to you in the near future.

I apologize that this assessment was not included in the original draft SSP, but am certainly glad we now have it in time to get the document into the final SSP.

Sincerely,

Steven D. Smith

Project Coordinator

Cc: Sandra Bron - Illinois EPA
Peter Barrett - CH2M Hill
Michael Kangas - CH2M Hill
Kevin de la Bruere - U.S. Fish and Wildlife Services
Michael Henry - Natural Resource Trustees Program

SA2SG Technical Committee

ASSESSMENT OF AN OLD LAGOON AT THE AMERICAN BOTTOMS TREATMENT SITE

SAUGET SANITARY DEVELOPMENT AND RESEARCH ASSOCIATION SAUGET, ILLINOIS

April 1988

Geraghty & Miller, Inc. Ground-Water Consultants 125 East Bethpage Road Plainview, New York 11803

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FIGURES

- 1. Old Lagoon Location.
- 2. Soil Boring Locations and Lagoon Boundary.

APPENDIX

A. Sample/Core Logs

ASSESSMENT OF AN OLD LAGOON AT THE AMERICAN BOTTOMS TREATMENT PLANT

SAUGET SANITARY DEVELOPMENT AND RESEARCH ASSOCIATION SAUGET, ILLINOIS

INTRODUCTION

In December, 1987 Geraghty & Miller, Inc. was retained by the Sauget Sanitary Development and Research Association (SSDRA), to evaluate an old waste lagoon located on American Bottoms Treatment Plant property. The objective of this project was to determine the nature, thickness, and lateral extent of buried waste material.

The lagoon is located on the northwest corner of the American Bottoms Regional Wastewater Treatment Facility (Figure 1). Part of the old lagoon lies within a fenced area, covered by chat, west of the American Bottom's administration building. Most of the remainder of the lagoon is located in an open field north of the fenced area.

METHODOLOGY

Under the direction of a Geraghty & Miller hydrogeologist, John Mathes & Associates, Inc. drilled 23 borings between December 28 and 31, 1987 (Figure 2). The borings were drilled on two east-west lines and one north-south line through the lagoon to best define its boundaries. An aerial

photograph was used to assist in determining the type of grid pattern necessary to find the lagoon boundaries.

All borings were drilled with a hollow-stem auger using either a truck-mounted or all-terrain vehicle (ATV). Soil samples were collected continuously at 2-ft intervals from ground surface with a 2-ft long, 2-inch diameter splitbarrel core sampler. To prevent cross contamination between each borehole, all downhole drilling and sampling equipment was cleaned with a high-pressure steam cleaner. In addition, split-barrel core samplers were cleaned with a laboratory-grade detergent (Microtm). A record of sample location, depth, grain size, color and odor was maintained throughout the drilling operation. Geologic logs for these borings are provided in Appendix A.

Borings ranged in depth from 2 to 20 ft below land surface. Most were drilled to a depth of 4 to 6 ft. Additional borings (2-ft depth) were made toward the perimeter of the lagoon to better define the lateral boundaries. Three of the borings were also drilled to the water table to determine its position with respect to the waste material and to assess the quality of soil beneath the waste material.

Two soil samples, which were typical of the lagoon waste material, were obtained from two separate locations

(AB-8 and AB-10). These samples were collected at the 2- to 4-ft interval below land surface in each boring. The samples were shipped, in a sealed insulated container to Environmental Testing and Certification Laboratory (ETC) in Edison, New Jersey, via overnight express courier, for analysis of the USEPA priority pollutant list of compounds.

Upon completion of the boring program, all borings were properly backfilled with a grout/slurry mixture and staked for future reference.

GEOLOGY

The geology at the lagoon site consists of unconsolidated deposits made up primarily of sand, silt, and clay. Waste material was found to be thickest (approximately 3 ft) in the center of the lagoon area outlined on Figure 2. Most of the waste material exists between 1 and 4 ft below land surface. Stained soil is found beneath the waste as deep as 8 ft below land surface.

The water table was found approximately 19 ft below land surface during our study. This depth concurs with a the water-table depth measured in Geraghty & Miller Observation Well GM-23, which is located approximately 400 ft to the east of the lagoon.

CHEMICAL ANALYSES

The analytical results of chemical analyses to determine the nature of the waste material are summarized in Tables 1 through 5.

Respectfully submitted,

GERAGHTY & MILLER, INC.

Brian Blum

Field Geologist

Dennis Colton Project Geologist

Nicholas Valkenburg

Project Manager

BB/DC/NV:dv

Table 1. Summary of Volatile Organic Compounds in Soil Samples, Sauget Sanitary Development and Research Association, Sauget, Illinois.

	•	AB-8 (2 to 4 ft)	Soil Boring AB-10 (2 to 4 ft)		
USEPA Priority Pollutant Volatile Organic Compounds	Concentration (mg/kg)	Detection Limit (mg/kg)	Concentration (mg/kg)	Detection Limit (mg/kg)	
Acrolein	ND	5000	ND	5000	
Acrylonitrile	ND	5000	ND	5000	
Benzene	ND	220	ND	220	
Bis (chloromethyl) ether	ND	500	ND	500	
Bromoform	ND	240	ND	240	
Carbon tetrachloride	ND	140	ND	140	
Chlorobenzene	ND	300	ND	300	
Chlorodibromomethane	ND	160	ND	160	
Chloroethane	ND	500	ND	500	
2-Chloroethylvinyl ether	ND	500	ND	500	
Chtoroform	ND	80	ND	80	
Dichlorobromomethane	ND	110	ND	110	
Dichlorodifluoromethane	ND	500	ND	500	
1,1-Dichloroethane	BMD L	240	NID	240	
1,2-Dichloroethame	ND	140	ND	140	
1,1-Dichloroethylene	BMO L	140	ND	140	
1,2-Dichloropropane	ND	300	MD	300	
cis-1,3-Dichtoropropytene	NO	250	ND	250	
trans-1,3-Dichloropropylene	NID	500	ND	500	
Ethylbenzene	3370 -	360	3890 ~	360	
Methyl bromide	NO	500	ND	500	
Methyl chloride	MD	500	ND	500	
Methylene chloride	ND	140	560	140	
1,1,2,2-Tetrachloroethane	ND	350	ND	350	
Tetrachloroethylene	BMDL	210	BMDL	210	
Toluene	17500	300	21400 -	300	
trans-1,2-Dichloroethylene	550	80	ND	80	
1,1,1-Trichloroethane	11700	190	621	190	
1,1,2-Trichtoroethane	ND	250	ND	250	
Trichloroethylene	8850	95	1120 -	95	
Trichlorofluoromethane	MD	500	ND	500	
Vinyl chloride	MD	500	ND	500	

ND Not detected

BMOL Below method detection limit

mg/kg Milligrams per kilogram

Table 2. Summary of Acid Extractable Organic Compounds in Soil Samples, Sauget Sanitary Development and Research Association, Sauget, Il.

	Soil Boring	ng AB-8 (2 to 4 ft) Soil Boring AB-10 (2 to 4 ft			
USEPA Priority Pollutant Acid Extractable Organic Compounds	Concentration (mg/kg)	Detection Limit (mg/kg)	Concentration (mg/kg)	Detection Limit (mg/kg)	
2-Chlorophenol	ND	1.3	ND	1.7	
2,4-Dichlorophenol	ND	1.1	ND	1.4	
2,4-Dimethylphenol	ND	1.1	9.16	1.4	
4,6-Dimitro-o-cresol	ND	9.8	ND	12	
2,4-Dinitrophenol	ND	17	ND	22	
2-Nitrophenol	ND	1.5	ND	1.9	
4-Nitrophenol	ND	0.98	ND	1.2	
p-Chloro-m-cresol	ND	1.2	ND	1.6	
Pentachlorophenol	ND	1.5	ND	1.9	
Phenol	ND	0.61	68.6	0.78	
2,4,6-Trichlorophenol	ND	1.1	ND	1.4	

ND Not detected

BMDL Below method detection limit mg/kg Milligrams per kilogram

Table 3. Summary of Base/Neutral Extractable Organic Compounds in Soil Samples, Sauget Sanitary Development and Research Association, Sauget, Illinois.

USEPA Priority Pollutant		B	0	Bannadaa (2.1
Base/Neutral Extractable Organic Compounds	(mg/kg)	Detection Limit (mg/kg)	(mg/kg)	Detection Limi (mg/kg)
Acenaphthene	ND	0.77	ND	9.9
Acenapthylene	ND	1.4	ND	18
Anthracene	NIC	0.77	ND	9.9
Benzidine	NO	18	ND	230
Benzo (a) anthraceme	MD	3.2	ND	40
Benzo (a) pyrene	ND	1	ND	13
Benzo (b) fluoroanthene	ND	4.1	ND	52
Benzo (ghi) perylene	ND	1.7	ND	21
Benzo (k) fluoranthene	ND	1.4	ND	18
Bis (2-Chloroethoxy) methane	ND	2.2	ND	28
Bis (2-Chloroethyl) ether	ND	2.3	ИD	30
Bis (2-Chloroisopropyl) ether	ND	2.3	ND	30
Bis (2-Ethylhexyl) phthalate	6.06	4.1	5850	52
-Bromophenyl phenyl ether	NO	0.77	ND	9.9
Butyl benzyl phthalate	ND	4.1	132	52
2-Chloronaphthalene	ND	0.77	ND	9.9
4-Chlorophenyl phenyl ether	ND	1.7	ND	22
Thrysene	ND	1	ND	13
Dibenzo (a,h) anthracene	ND	4.1	ND	52
1,2-Dichlorobenzene	ND	0.77	ND	9.9
,3-Dichlorobenzene	ND	0.77	ND	9.9
,4-Dichlorobenzene	ND	1.8	ND	23
3.3-Dchlorobenzidine	ND	6.7	ND	86
Diethyl phthalate	ND	4.1	381	52
Dimethyl phthalate	ND	4.1	BMDL	52
Di-n-butyl phthalate	ND	4.1	1370	52
2,4-Dinitrotoluene	ND	2.3	ND	30
2,6-Dinitrotoluene	MD	0.77	ND:	9.9
i-n-octyl phthalate	MD	4.1	BMO L	52
,2-Diphenythydrazine	ND	4.1	ND	52
Luoranthene	8MDL	0.89	BMD L	11
Fluorene	ND	0.77	ND	9.9
lexach Lorobenzene	ND	0.77	ND	9.9
lexach Lorobutadi ene	NO	0.37	ND	4.7
lexach lorocyc lopen tadí ene	ND	4.1	ND	52
lexachloroethane	ND	0.65	ND	8.3
Indeno (1,2,3-c,d) pyrene	ND	1.9	ND	24
Sophorone	2.38	0.89	1590	11
laphthalene	1.45	0.65	1260 -	8.3
itrobenzene	ND	0.77	ND	9.9
N-Nitrosodimethylamine	ND	4.1	ND	52 52
√-Nitrosodi∘n-propylamine	ND	4.1	ND ND	52
(-Nitrosodien-propytamine (-Nitrosodiphenylamine				
rritrosogiphenytamine Phenanthrene	ND	0.77	ND	9.9
	BMOL.	2.2	BMDL	28
Pyrene 1,2,4-Trichlorobenzene	BMDL ND	0.77 0.77	23.7 ND	9.9 9.9

ND Not detected

BMDL Below method detection limit

mg/kg Milligrams per kilogram

Table 4. Summary of Pesticide and PCB Compounds in Soil Samples, Sauget Sanitary Development and Research Association, Sauget, Illinois.

	Soil Boring	AB-8 (2 to 4 ft)	Sail Boring	Sail Boring AB-10 (2 to 4 ft)	
Pesticide and PCB Compounds	(mg/kg)	Detection Limit (mg/kg)	Concentration (mg/kg)	Detection Limit (mg/kg)	
Aldrin	NO	0.77	ND	9.9	
Alpha-BHC	ND	4.1	ND	52	
Beta-BHC	ND	1.8	ND	23	
Garma - BHC	ND	4.1	ND	52	
Delta-BHC	ND	1.3	ND	16	
Chlordane	ND	4.1	ND	52	
4,4'-DDT	ND	1.1	ND	15	
4,4'-DDE	ND	2.3	ND	29	
4,4'-DDD	ND	1.9	ND	24	
Dieldrin	ND	1	ND	13	
Endosulfan I	ND	4.1	ND	52	
Endosutfan II	ND	4.1	ND	52	
Endosulfan sulfate	ND	2.3	ND	29	
Endrin	ND	4.1	ND	52	
Endrin aldehyde	ND	4.1	ND	52	
Heptachlor	ND	0.77	ND	9.9	
Heptachlor epoxide	ND	0.89	ND	11	
PCB-1016	ND	15	ND	190	
PCB-1221	ND	15	ND	190	
PCB-1232	ND	15	ND	190	
PC8-1242	ND	15	ND	190	
PCB-1248	MD	15	ND	190	
PCB-1254	MD	15	ND	190	
PCB-1260	MD	15	ND	190	
Toxaphene	ND	4.1	ND	52	

NO Not detected

BMDL Below method detection limit mg/kg Milligrams per kilogram

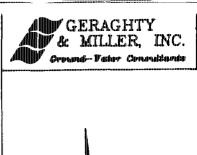
Table 5. Summary of Metals and Miscellaneous Parameters in Soil Samples, Sauget Sanitary Development and Research Association, Sauget, Illinois.

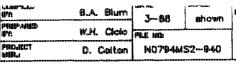
	Soil Boring AB-8 (2 to 4 ft) Soil Boring AB-10 (2 to 4				
USEPA Priority Pollutant Metals	Concentration (mg/kg)	Detection Limit (mg/kg)	Concentration (mg/kg)	Detection Limit (mg/kg)	
Antimony	ND	6.7	9.8	6.7	
Arsenic	5.2	2	1.9	1	
Beryllium	0.39	0.049	0.15	0.049	
Cadmium	0.56	0.31	43.2	0.31	
Chromism	27	0.78	2260 _	1.3	
Copper	19	1.2	1570 -	1.5	
Lead	52	4	11600	6.9	
Mercury	BMD L	0.08	1.5	0.08	
Nickel	13	1.1	17	1.1	
Selenium	BMO L	1	5.3	0.5	
Silver	ND	1.4	ND	1.4	
Thallium	BMO L	1	ND	1	
Zinc	74	2	767	2	
Miscellaneous Parameters					
Phenol	20	0.1	52	0.1	
Cyanide	<0.5	0.5	25	0.5	

ND Not detected

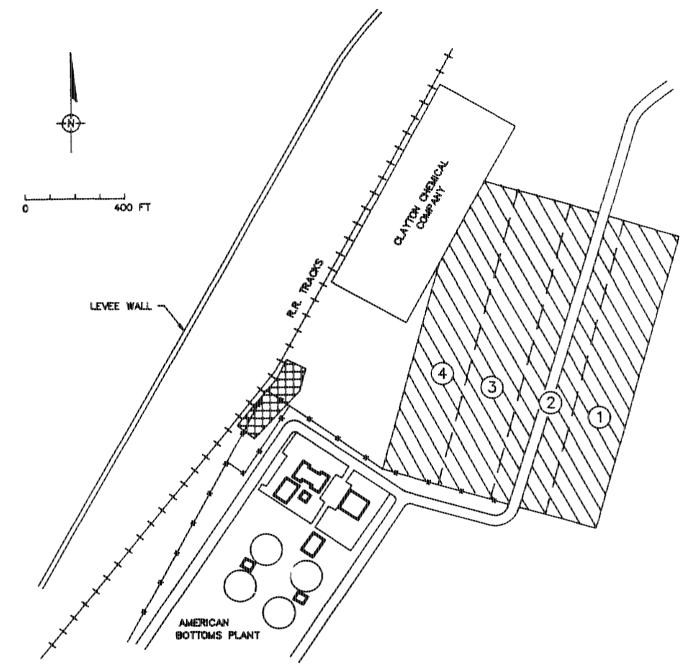
BMOL Below method detection limit

mg/kg Milligrams per kilogram





SAUGET SANITARY DEVELOPMENT AND RESEARCH ASSOCIATION Sauget, Illinois



EXPLANATION

LOCATION OF OLD LAGOON

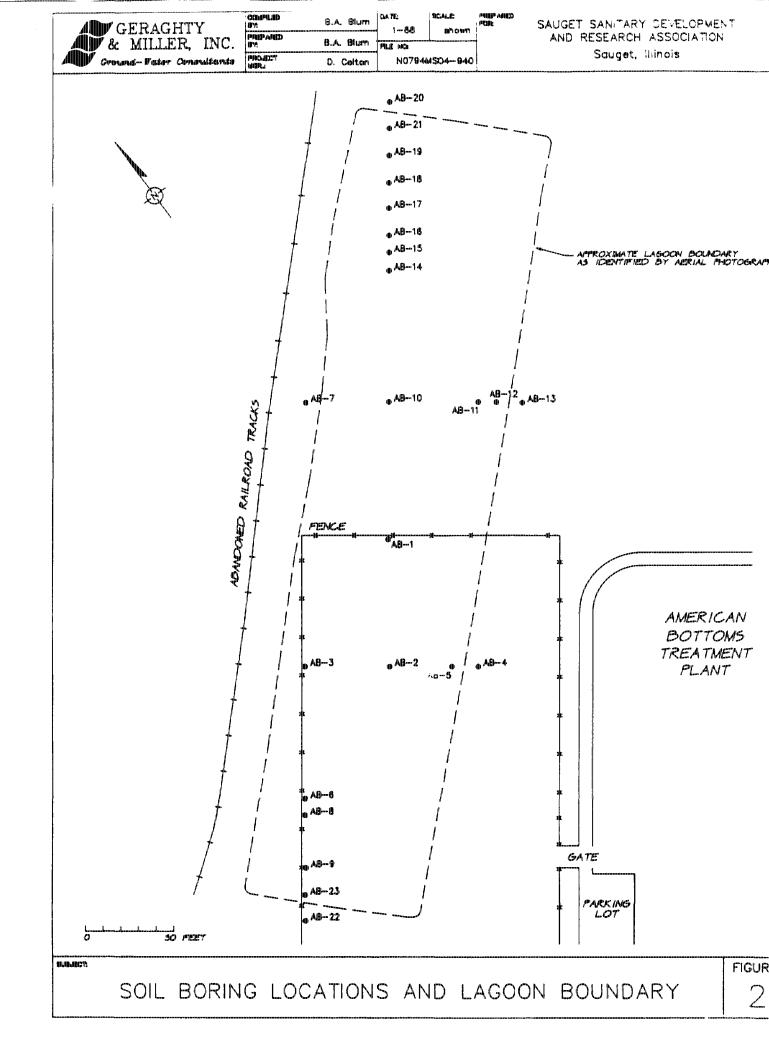
777

LOCATION OF OLD SAUGET MILLAGE LAGOONS

moder

OLD LAGOON LOCATION

FIGUE



SAMPLE/CORE LOG

SSDRA

BORING/WELL: AB-1	PROJECT NO: NO79	4MS04		of 1	
SITE LOCATION: Sauget, II	DRILLIN STARTED		DRILLING COMPLETED:		
TOTAL DEPTH DRILLED: 16 ft	HOLE DIAMETER: 6 in.	TYPE OF S CORING DE	SAMPLE/ EVICE: Split		Barre
LENGTH & DIAMETER OF CORING DEVICE: 2	SAMPLING	: continuc	ous		
LAND-SURFACE ELEVATION:	. ,	D ED DATUM:			
DRILLING FILTID USED:			D: Hollow St		
	thes & Assoc. DRILLER:	Tom Marlo		Dave Ellis	
PREPARED BY: B. Blum			HAMMER DROP:	30 in.	

SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION
	FROM	ro			
	0	2	0.5	6-23-	Fill: Top - 0.5' Crushed stone cover (limestone
				17-7	pebbles and cobbles), light gray. Sand, fine wit
1				,	silt, brown.
	2	4	0.75	9-5-	Fine black material with a strong odor, some red and
				5-7	pink resinous material as well.
	4	6	1.5	2-4-	Sand, fine, gray with a 0.5' brown silt seam in
				5-9	between; dry; sweet odor present.
	6	8	2.0	7-8-	Sand, fine, gray; sweet odor present; dry.
				11-10	
	8	10	2.0	5-4-	Sand, fine to medium, light gray; extremely
				6-9	strong odor present; dry.
	10	12	2.0	5-9-	Same as above.
				13-16	
	12	14	2.0	5-9-	Same as above.
				8-10	
	14	16	2.0	10-14-	Same as above. Wet at tip of spoon.
J				14-18	
144-1					

SAMPLE/CORE LOG

SSDRA
BORING/WELL: AB-2 PROJECT NO: NO794MS04 PAGE: 1 of 1

SITE DRILLING DRILLING COMPLETED: 12/28/87

TOTAL DEPTH HOLE
DRILLED: 20 ft DLAMETER: 6 in.

TYPE OF SAMPLE/
CORING DEVICE: Split Spoon Core Barrel

DRILLED: 20 ft DIAMETER: 6 in. CORING DEVICE: Split Spoon Core F

LENGTH & DIAMETER SAMPLING
OF CORING DEVICE: 2 ft x 2 in. INTERVAL: continuous

LAND-SURFACE { } SURVEYED EXEMPLE DATUM:

DRILLING FLUID USED: None DRILLING METHOD: Hollow Stem Auger

DRILLING
CONTRACTOR: John Mathes & Assoc. DRILLER: Tom Marlo HELFER: Dave Ellis

PREPARED BY: B. Blum HAMMER WEIGHT: 140 lb HAMMER DROP: 30 in.

PRI	EPARED 1	BY: B.	Blum	BC	AMMER WEIGHT: 140 lb HAMMER DROP: 30 in.		
SAMPLE NO	SAMPLE DEPTH		SAMPLE CORE BLO DEPTH RECVRY COUN		SAMPLE/CORE DESCRIPTION		
	FROM	OT					
	0	2	4112	>50	No sample. All fill crushed stone could not		
					penetrate spoon.		
	2	4	1.5	2-6-	Fine sand and silt, black to brown; bottom 0.75'		
				5-5	contains discolored sand, silt, lime green and		
					dark red; strong odor present.		
	4	6	0	2-3-	No recovery.		
)				53			
	6	8	2	2-4-	Silt, black, strong odor present; bottom 0.5' sand,		
				7-8	fine, gray.		
	8	10	2	2-4-	Sand, fine, gray.		
				7-9			
	10	12	2	2-5-	Same as above $(0.25' \text{ silt lens at } 11.5' \text{ to } 11.75')$.		
				5-9			
	12	14	2	5-7-	Same as above.		
				9-11			
	14	16	2	6-10-	Same as above.		
				18-21			
	16	18	2	14-22-	Same as above.		
				41-30			
	18	20		4-6-	Same as above. Wet at ~19'.		
				7-9			
		,					

SAMPLE/CORE LOG

SSTIRA

BORING/WELL: AB-3 PROJE	CT NO: NO794MS04	PAGE: 1 of 1
SITE LOCATION: Sauget, IL	DRILLING STARTED: 12/28/87	DRILLING COMPLETED: 12/28/87
TOTAL DEPTH HOLE DRILLED: 6 ft DIAMETER: 6	TYPE OF S	SAMPLE/ EVICE: Split Spoon Core Barre
LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in.	SAMPLING INTERVAL: continue	ous
LAND-SURFACE ELEVATION:	SURVEYED DATUM:	
DRILLING FLUID USED: None	DRILLING METHO	D: Hollow Stem Auger
DRILLING CONTRACTOR: John Mathes & Assoc	. DRILLER: Tom Marlo	HELPER: Dave Ellis
	MMER WEIGHT: 140 lb 1	

E.I.C.	APPENDIC I	BX: B.	4-7-8-1-42-44	A 46	AMMER WEIGHT: 140 LD HAMMER DROP: 30 LN.
SAMPLE NO	SAMPLE DEPTH		SAMPLE CORE BLC DEPTH RECVRY COUN		SAMPLE/CORE DESCRIPTION
	FROM	OT	1	'	
	0	2	1.0	3-3-	Silt and clay, brown (covered with 0.5' of crushed
	444			4-5	stone).
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2	4	0.3	3-4-	Same as above. (A rock lodged into the spoon tip
			,	3-2	resulted in poor recovery.)
	4	6	1.5	2-2-	Clay, black (no odor present) grading into natural
				3-8	looking clay, gray, bottom 0.75'. Sand, fine
					gray in tip of spoon.
	,				
			<u> </u>		
(40-7-2					
				,	
		1			
	#J14 (144)				
			-		
					4

BORING/WELL: AB-4 PROJECT	NO: NO794MSO4	PAGE: 1 of 1
SITE LOCATION: Sauget, IL	DRILLING STARTED: 12/29/87	DRILLING COMPLETED: 12/29/87
TOTAL DEPTH HOLE DIAMETER: 2 in	TYPE OF S. CORING DE	AMPLE/ VICE: Split Spoon Core Barrel
LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in.	SAMPLING INTERVAL: continuo	us
LAND-SURFACE ELEVATION:	SURVEYED DATUM:	
DRILLING FLUID USED: None		: Hollow Stem Auger
DRILLING CONTRACTOR: John Mathes & Assoc.	DRILLER: Jim Breedin	g HELPER: Dave Ellis
PREPARED BY: B. Blum HAMME	ER WEIGHT: 140 1b H	

SAMPLE NO	SAMI DEPI	PLE TH	CORE RECVRY	BLOW	SAMPLE/CORE DESCRIPTION
Ì	FROM	то			
	0	2		8-5-	Silt, brown, below a crushed stone cover.
				9-8	
	2	4	4	3-3-	Silt, brown with sand, fine in tip of spoon.
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		»		4 - 5	
		#hdu##====hhA######			

		***************		***************************************	
				,	
		# #		,	
	7460F-X200V4000066000				
		PP-111111-47141111114-1		P#hddh-1dh	
	474774425664665565644			***************************************	
	4-2-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4			P-4b	

		#====#################################			
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·			**************************************	=======================================	
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	a t This and a deep of a by paper				
)=b==========qqqqgy		=======================================	

	NO: NO794MS04	PAGE: 1 of 1
SITE LOCATION: Sauget, IL	DRILLING STARTED: 12/29/87	DRILLING COMPLETED: 12/29/87
TOTAL DEPTH HOLE DRILLED: 6 ft DIAMETER: 6 i	TYPE OF S CORING DE	AMPLE/ VICE: Split Spoon Core Barre
LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in.	SAMPLING INTERVAL: continuo	us
LAND-SURFACE { ELEVATION:	SURVEYED DATUM:	
DRILLING FIUID USED: None		: Hollow Stem Auger
DRILLING CONTRACTOR: John Mathes & Assoc.	DRILLER: Jim Breedin	g HELPER: Dave Ellis
	ER WEIGHT: 140 lb H	AMMER DROP: 30 in.

SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION
	FROM	TO	1		
	0	2		7-8-	Crushed stone cover. Sand, fine, tan-brown.
				9-8	
	2	4		8-5-	Silt, brown, at 2.5' to 2.8', a faint green material
		()		5-7	grades into sand, fine, in tip of spoon, odor
					present.
	4	6		6-5-	Silt, brown $(4'$ to $5')$; sand, fine to medium, light
	.xadbean-rofondesida-an	 	***************************************	5-8	brown (5' - 6').
-4444111411					
				***************************************	Name
	r diffikkisk i Paskassussi				
	***************************************	ļ 		h#8+baaanaan	
		**************************************			N

		Ekdhahdassanan kassa			

-447222			·		
*4*5200000000000000000000000000000000000				P-48827788874844846664	
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and the state of t	SSERA JECT NO: NO794MS04	PAGE: 1 of 1
SITE LOCATION: Sauget, IL	DRILLING STARTED: 12/2	DRILLING
TOTAL DEPTH HOLE DRILLED: 6 ft DIAMETER:	TYP	E OF SAMPLE/ ING DEVICE: Split Spoon Core Barre
LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in.	SAMPLING INTERVAL: CO	ntinuous
LAND-SURFACE ELEVATION:	{ } SURVEYED	: MLVI
DRILLING FLUID USED: None		METHOD: Hollow Stem Auger
DRILLING CONTRACTOR: John Mathes & Asso		areeding HELPER: Dave Ellis
		lb HAMMER DROP: 30 in.

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SAMPLE NO	SAMI DEP	SAMPLE CORE DEPTH RECVRY		ORE BLOW COUNTS	SAMPLE/CORE DESCRIPTION
ſ	FROM	OT] '		
	0	2	1.0	2-4-	Crushed stone cover.
			***************************************	3-3	
	2	4	1.0	Low	Silt, brown, at 2.5' - 3.0' silt was black and had a
					strong odor; back into silt and fine sand at
		Particular de la constitución de		A Three transfers	3.0' - 4.0'.
	4	6	1.5	2-3-	Silt, brown and sand, fine.
				3-10	
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SAMPLE/CORE LOG

SSDRA PROJECT NO: NO794MS04 PAGE: 1 of 1 BORING/WELL: AB-7 DRILLING DRILLING STARTED: 12/29/87 COMPLETED: 12/29/87 LOCATION: Sauget, IL TOTAL DEPTH DRILLED: 6 ft HOLE TYPE OF SAMPLE/CORING DEVICE: Split Spoon Core Barrel DIAMETER: 6 in. LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING INTERVAL: continuous SURVEYED LAND-SURFACE ELEVATION: SURVEYED DATUM: DRILLING FLUID USED: None DRILLING METHOD: Hollow Stem Auger CONTRACTOR: John Mathes & Assoc. DRILLER: Jim Breeding HELPER: Dave Ellis HAMMER WEIGHT: 140 lb HAMMER DROP: 30 in. PREPARED BY: B. Blum

SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION
	FROM	OT			
	0	2		4-11-	Organic debris on top of black cinder type material
.,,,,,		,		9-10	with red and green spots.
	2	4		6-9-	Cinder type material (black) on top of silt and clay
				5-4	at 3'.
	4	6		4-3-	Clay, brown.
				5-4	
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SAMPLE/CORE LOG

SSERA PAGE: 1 of 1 PROJECT NO: NO794MS04 BORING/WELL: AB-8 DRILLING DRILLING SITE STARTED: 12/29/87 COMPLETED: 12/29/87 LOCATION: Sauget, IL TYPE OF SAMPLE/CORING DEVICE: Split Spoon Core Barrel TOTAL DEPTH DRILLED: 4 ft HOLE DIAMETER: 2 in. LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING INTERVAL: continuous SURVEYED DATUM: LAND-SURFACE ELEVATION: DRILLING FLUID USED: None DRILLING METHOD: Hollow Stem Auger DRILLING CONTRACTOR: John Mathes & Assoc. DRILLER: Jim Breeding HELPER: Dave Ellis TRAMMED DETCEPT 140 15 TRAMMED TOODS 20 in

SAMPLE	SAMPLE DEPTH		CORPE	BTOW	
NO	DEP.	TH	RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION
	FROM	TO			
	0	2		2-3-	Clay type material green and rusty-orange with stro
		(h		5-2	odor.
	2	4		8-7-	Same as above; sheet-like layering and multicolored
				13-9	green, orange, red, yellow).
	4	6		148-	No sample taken.
	and a superior of the superior				

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Aprile Cape Copy Committee Committee Committee Copy Copy Copy Copy Copy Copy Copy Copy	PROJECT NO: NO794MS04	PAGE: 1 of 1
SITE LOCATION: Sauget, IL	DRILLING STARTED: 12/29/87	DRILLING COMPLETED: 12/29/87
TOTAL DEPTH HOLE DRILLED: 6 ft. DIAMET	ER: 6 in. TYPE OF S	
LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2		•
LAND-SURFACE ELEVATION:	SURVEYED DATUM:	
DRILLING FLUID USED: None		D: Hollow Stem Auger
DRITIANG	Assoc. DRILLER: Jim Breedi	•
PREPARED BY: B. Blum		HAMMER DROP: 30 in.

			Japan-Landensender	T	
SAMPLE NO	SAMPLE DEPTH		RECVRY	BLOW	SAMPLE/CORE DESCRIPTION
	FROM	OT	,	<u> </u>	
	0	2	}	2-5-	Top 0.25' clay, green, orange sand, fine, brown
	<u> </u>		,	9-10	below.
	2	4	,	23-12	Sand, fine, light brown $(2' - 3')$ on top of clay;
				9-7	gray, strong odor.
	4.	6		4-5-	Clay, dark gray to black with strong odor. Bottom
	<u></u>			9-7	0.3' sand, fine, gray.
				, , , , , , , , , , , , , , , , , , ,	
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SAMPLE/CORE LOG

PROJECT NO: SSDRA PROJECT NO: NO794MS04 PAGE: 1 of 1 BORING/WELL: AB-10

DRILLING COMPLETED: 12/30/87 SITE LOCATION: Sauget, IL DRILLING STARTED: 12/30/87

TYPE OF SAMPLE/CORING DEVICE: Split Spoon Core Barrel HOLE TOTAL DEPTH DIAMETER: 6 in. DRILLED: 20 ft

LENGIH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING continuous INTERVAL:

LAND-SURFACE ELEVATION: SURVEYED ESTIMATED DATUM:

DRILLING FLUID USED: None DRILLING METHOD: Hollow Stem Auger

CONTRACTOR: John Mathes & Assoc. DRILLER: Jim Breeding HELFER: Dave Ellis

DRILLING

HAMMER WEIGHT: 140 lb HAMMER DROP: 30 in. PREPARED BY: B. Blum

SAMPLE NO	SAMI DEP	PLE TH	CORE RECVRY	BLOW	SAMPLE/CORE DESCRIPTION	
	FROM	OT]			
	0	2	2	1-10-	Clay, natural organic material, rusty orange (0 - 1'	
		***************************************		25-19	black and green cinder-like material.	
	2	4	1.0	19-17-	Crushed aggregate. Limestone chunks. (Material	
				15-9	coming up around auger flytes is reddish-purple	
					with a strong odor).	
	4	6	410	5-6-	No recovery.	
				7-11		
	6	8	2	5-8-	Sand, fine to medium, light gray.	
				11-12		
	8	10	2	9-8-	Same as above.	
				8-5		
	10	1.2	2	4-3-	Same as above grading into silt, dark gray at	
				4-11	11' - 12'.	
	12	14		7-11-	Sand, fine to medium, gray.	
				14-14		
	14	1.6		11-14-	Same as above.	
,,				14-15		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	16	18		6-9-	Same as above.	
				15-24		
	18	20		14-15-	Same as above. Wet.	
				15-19		

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BORING/WELL: AB-11 PRO	JECT NO: NO794N	1504	PAGE: 1 c	of 1	
SITE LOCATION: Sauget, IL	DRILLING		DRILLING COMPLETED:	12/30/87	
TOTAL DEPTH HOLE DRILLED: 6 ft. DIAMETER:	6 in.	TYPE OF S	EVICE: Split	Spoon Core	
LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in	SAMPLING INTERVAL:	continuo			
LAND-SURFACE ELEVATION:	() SURVEYED () ESTIMATE	DATUM:			
DRILLING FLUID USED: None		LING METHOI	D: Hollow Ste	em Auger	
DRILLING CONTRACTOR: John Mathes & Ass	oc. DRILLER:	Jim Breedin	ng HELPER: I	Dave Ellis	
PREPARED BY: B. Blum	HAMMER WEIGHT:	140 lb i	HAMMER DROP:	30 in.	

PRE	PARED 1	BY: B. 1	Blum	1:1 <i>i</i>	AMMER WEIGHT: 140 1b HAMMER DROP: 30 in.		
SAMPLE NO	SAMI DEP	AMPLE CORE EPTH RECVRY		BLOW COUNTS	SAMPLE/CORE DESCRIPTION		
	FROM	то	7				
	0	2	1.	Pushed	Rock lodged in spoon head. Organic debris, brown		
					silt.		
	2	4			Sand, fine, brown (2-3'), silt and clay, some black		
					stain with slight odor.		
	4	6			Sand, fine, brown (4 to 5.5'). Silt and clay		
					(5.5 - 5.9'), sand, fine, gray, no odor.		
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SAMPLE/CORE LOG

SSDRA BORING/WELL: AB-12 PROJECT NO: NO794MS04 PAGE: 1 of 1 DRILLING DRILLING STARTED: 12/30/87 COMPLETED: 12/30/87

LOCATION: Sauget, IL TOTAL DEPTH HOLE TYPE OF SAMPLE/
DRILLED: 6 ft. DIAMETER: 6 in. CORING DEVICE: Split Spoon Core Barrel

LENGTH & DIAMETER SAMPLING OF CORING DEVICE: 2 ft x 2 in. SAMPLING INTERVAL: continuous SAMPLING

() SURVEYED () ESTIMATED DATUM:

ELEVATION:

DRILLING METHOD: Hollow Stem Auger DRILLING FLUID USED: None

CONTRACTOR: John Mathes & Assoc. DRILLER: Jim Breeding HELPER: Dave Ellis

PREPARED BY: B. Blum HAMMER WEIGHT: 140 1b HAMMER DROP: 30 in. CORE BLOW RECVRY COUNTS SAMPLE SAMPLE SAMPLE/CORE DESCRIPTION NO DEPTH TO FROM Clay, orange, on top of sand, fine fill; (1.5 ' 2'), 0 2 1-3-10-6 aggregate. 12-12- Cinder type material 2.5 to 3.0'; 3.0 - 3.2, stained 10-9 silt; 3.2 - 4', silt, gray. 3-3-Silt, gray. 4-5

SSDRA PAGE: 1 of 1 BORING/WELL: AB-13 PROJECT NO: NO794MSO4 DRILLING DRILLING STARTED: 12/30/87 COMPLETED: 12/30/87 LOCATION: Sauget, IL TYPE OF SAMPLE/CORING DEVICE: Split Spoon Core Barrel TOTAL DEPTH HOLE DRILLED: 4 ft DIAMETER: 2 in. LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING INTERVAL: continuous () SURVEYED () ESTIMATED DATUM: LAND-SURFACE ELEVATION: DRILLING FLUID USED: None DRILLING METHOD: Hollow Stem Auger CONTRACTOR: John Mathes & Assoc. DRILLER: Jim Breeding HELPER: Dave Ellis UAMMED TETOLOGIANA 1/A 12 COMMENT OF A 2/A 1.

SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION
ľ	FROM	TO	1		
	0	2	2	2-6-	Silt and clay, orange, (0 - 0.5'); sand, fine
			h	6 - 7	(0.5 - 2.0').
	2	4	2	4-5-	Silt, dark gray. No odor.
				5-4	
"					

SSDRA PROJECT NO: NO794MSO4 PAGE: 1 of 1 BORING/WELL: AB-14 DRILLING DRILLING STARTED: 12/30/87 COMPLETED: 12/30/87 LOCATION: Sauget, IL TYPE OF SAMPLE/CORING DEVICE: Split Spoon Core Barrel TOTAL DEPTH DRILLED: 6 ft HOLE DIAMETER: 6 in. SAMPLING INTERVAL: LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. continuous LAND-SURFACE SURVEYED () ESTIMATED DATUM: ELEVATION: DRILLING FLUID USED: None DRILLING METHOD: Hollow Stem Auger DRILLING CONTRACTOR: John Mathes & Assoc. DRILLER: Jim Breeding HELPER: Dave Ellis

PRE	EPARED I	3Y: B. !	Blum	H	AMMER WEIGHT: 140 1b HAMMER DROP: 30 in.
SAMPLE NO	SAMI DEPI	PLE TH	CORE RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION
<u> </u>	FROM	то		'	
	0	2	1.5	2-14-	Silt and clay (0 - 0.5') followed by crushed rock.
				7-8	Fill.
	2	4	2.0	6-6-	Sand, fine, brown (2 - 3') silt, gray to black with
				5-4	odor (3 - 4').
	4	6	2.0	4-5-	Silt and very fine sand, grading into sand, fine,
				5 - 7	gray at 5.7'.
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SITE LOCATION: Sauget, IL	DRILLING STARTED: 12/31/87	DRILLING COMPLETED: 12/31/87
TOTAL DEPTH HOLE DRILLED: 4 ft DIAMETER: 2 i	TYPE OF S	AMPLE/ VICE: Split Spoon Core Barre
LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in.	SAMPLING INTERVAL: continuo	us
LAND-SURFACE { ELEVATION:	SURVEYED DATUM:	
DRILLING FLUID USED: None		: Hollow Stem Auger
DRILLING CONTRACTOR: John Mathes & Assoc.	DRILLER: Jim Breedin	-
	ER WEIGHT: 140 lb H	AMMER DROP: 30 in.

SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION					
	FROM	FROM TO								
	0	2		7-10-	Clay and silt, orange (0 - 0.5'), dark organic					
	400,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			9-9	material, no odor present (0.5 - 1.5') sand, fine					
				-4444	light brown (1.5 - 2.0').					
	2	4		6-5-	Sand, fine, light brown (2.0 - 2.5') silt, dark brow					
				5-4	to light brown.					
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**SSDRA** PAGE: 1 of 1 BORING/WELL: AB-16 PROJECT NO: NO794MS04 DRILLING DRILLING LOCATION: Sauget, IL STARTED: 12/31/87 COMPLETED: 12/31/87 TYPE OF SAMPLE/CORING DEVICE: Split Spoon Core Barrel HOLE TOTAL DEPTH DIAMETER: 2 in. DRILLED: 4 ft LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING continuous INTERVAL: { } SURVEYED LAND-SURFACE ELEVATION: ( ) ESTIMATED DATUM: DRILLING METHOD: Hollow Stem Auger DRILLING FLUID USED: None CONTRACTOR: John Mathes & Assoc. DRILLER: Jim Breeding HELPER: Dave Ellis HAMMED INCTOURS 140 15 MAMMED DEOD: 30 fm

SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW	SAMPLE/CORE DESCRIPTION			
	FROM	TO	1					
	0	2	2	7-14-	Clay and silt, orange (0 - 0.5'),cinder like			
				25-11	material, tan and white, brittle, (0.5 - 1.5')			
				} 	Sand and silt, fine.			
	2	4	2	9-10-	Dark stained silt $(2 - 3')$ , silt, gray $(3 - 4')$ .			
				9-6				
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SSDRA PROJECT NO: NO794MS04 1 of 1 BORING/WELL: AB-17 PAGE: DRILLING DRILLING LOCATION: Sauget, IL STARTED: 12/31/87 COMPLETED: 12/31/87 TYPE OF SAMPLE/CORING DEVICE: Split Spoon Core Barrel TOTAL DEPTH DRILLED: 2 ft HOLE DIAMETER: 2 in. LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING INTERVAL: continuous ( ) SURVEYED ( ) ESTIMATED DATUM: LAND - SURFACE ELEVATION: DRILLING FLUID USED: None DRILLING METHOD: Hollow Stem Auger CONTRACTOR: John Mathes & Assoc. DRILLER: Jim Breeding HELPER: Dave Ellis HAMMER WEIGHT: 140 1b HAMMER DROP: 30 in. PREPARED BY: B. Blum

SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION		
	FROM	то	1				
	0	2	1.0	>49	Crushed stone and stained silt, purple and black.		
	2	4	-		No sample		
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SITE LOCATION: Sauget, IL	DRILLING STARTED: 12/31/87	DRILLING COMPLETED: 12/31/87
TOTAL DEPTH HOLE DIAMETER:	TYPE OF S	
OF CORING DEVICE: 2 ft x 2 in		us
LAND-SURFACE ELEVATION:	( ) SURVEYED ( ) ESTIMATED DATUM:	
DRILLING FLUID USED: None	DRILLING METHOD	: Hollow Stem Auger
DRILLING CONTRACTOR: John Mathes & Asse		•
	AMMER WEIGHT: 140 1b H	

SAMPLE NO	SAMI DEPT	PLE TH	CORE RECVRY	BLOW	SAMPLE/CORE DESCRIPTION	
.,	FROM	то	1'			
	0	2	2	4-15-	Silt and clay, orange (0 - 0.5'). Cinder like	
				29-17	material with limestone. Has odor (0.5 ' 1.5'),	
					sand, fine, brown (1.5 - 2.0').	
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BOF	RING/WELL: AB-	19 PR	OJEKT NO:	SSDRA NO794M	S04	PAGE:	1 01	<u> </u>	
SII	TE ATTON: Sauget	, II	DRI STR	LLING RTED:	12/31/87	DRILLIN COMPLET	G ED: 1	.2/31/87	
	AL DEPTH LLED: 2 ft	HOLE DIAMETER	: 2 in.		TYPE OF SA CORING DEV	MPLE/ VICE: Sp	lit S	Spoon Core	Barrel
LEN OF	GTH & DIAMETE CORING DEVICE	 R : 2 ft ж 2 ii		YLING RVAL:	continuou	15			
	ID-SURFACE VAITION:			KVEYED TIMATED	DATUM:				
DRI	LLING FLUID U	SED: None	_	DRILL	ING METHOD:	: Hollow	Sten	n Auger	
DRI CON	ILLING TRACTOR: John	Mathes & As	soc. DRII	iler: j	im Breeding	j HELPE	R: Da	ve Ellis	
PRE	PARED BY: B.	Blum	HAMMER WE	eight:	140 lb H2	AMMER DR	OP: 3	30 in.	
IPLE SAMPLE IO DEPIH		CORE BLO			SAMPLE/CC	ORE DESC	RIPII	CON	48.
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SAMPLE NO	SAMPLE DEPIH		CORE RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION				
	FROM	OT			•				
	0	2	2	2-5-	Silt and clay, orange (0.05') cinder and rock				
				9-6	(.5 - 1.25'); sand, fine (1.25 - 2.0').				
		}		, dans = 4, 11, 11, 11, 11, 11, 11, 11, 11, 11,					
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PROJECT NO: NO794MSO4 PAGE: 1 of 1 BORING/WELL: AB-20 DRILLING DRILLING STARTED: 12/31/87 COMPLETED: 12/31/87 LOCATION: Sauget, IL TYPE OF SAMPLE/CORING DEVICE: Split Spoon Core Barrel HOLE TOTAL DEPTH DRILLED: 4 ft DIAMETER: 2 in. LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING INTERVAL: continuous ( ) SURVEYED ( ) ESTIMATED DATUM: LAND-SURFACE ELEVATION: DRILLING FLUID USED: None DRILLING METHOD: Hollow Stem Auger DRILLING CONTRACTOR: John Mathes & Assoc. DRILLER: Jim Breeding HELPER: Dave Ellis

SAMPLE NO	SAMI DEPT	PLE TH	CORE RECVRY	BLOW	SAMPLE/CORE DESCRIPTION		
	FROM	то					
	0	2	2	2-3-	Crushed rock (fill) (0.0 - 0.5'), sand, fine, brown		
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			4-6	(0.5 - 1.5'), silt (stained black) not-ohudga-		
			,		(1.5 - 2.0').		
	2	4.	,	2-6-	Silt, brown.		
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	NO: NO794MS04	PAGE: 1 of 1
SITE LOCATION: Sauget, IL	DRILLING	DRILLING COMPLETED: 12/31/87
TOTAL DEPTH HOLE DRILLED: 2 ft DIAMETER: 2 in	TYPE OF SA	
LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in.	SAMPLING INTERVAL: continuo	
LAND-SURFACE ( ) ELEVATION: ( )	SURVEYED ESTIMATED DATUM:	
DRILLING FLUID USED: None	DRILLING METHOD	: Hollow Stem Auger
DRILLING CONTRACTOR: John Mathes & Assoc.		g HELPER: Dave Ellis
	R WEIGHT: 140 1b H	

SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW	SAMPLE/CORE DESCRIPTION		
	FROM	то	·	2-5-			
	0	2	***************************************		Organic debris (0 - 0.3') pebbles, cobbles, and		
				8-8	purple sand, fine grading to silt.		
	2	4					
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SSDRA

	JECT NO: NO794MS04	PAGE: 1 of 1
SITE LOCATION: Sauget, IL	DRILLING STARTED: 12/31/87	DRILLING COMPLETED: 12/31/87
TOTAL DEPTH HOLE DRILLED: 6 ft DIAMETER:	TYPE OF	
LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in	SAMPLING . INTERVAL: continu	ous
LAND-SURFACE ELEVATION:	{ } SURVEYED { } ESTIMATED DATUM:	
DRILLING FLUID USED: None		D: Hollow Stem Auger
DRILLING CONTRACTOR: John Mathes & Ass	oc. DRILLER: Jim Breedi	ng HELPER: Dave Ellis
PREPARED BY: B. Blum	HAMMER WEIGHT: 140 1b	HAMMER DROP: 30 in.

SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW COUNTS	SAMPLE/CORE DESCRIPTION
	FROM	то	1		
	0	2		20-12-	Crushed stone, organic, mat (0 - 1'), clay, dense,
				12-22	black.
	2	4		6-5-	Silt, grading into sand, fine at 3.5'.
				3-5	
	4	6		2-8-	Sand, fine, light brown.
				10-10	
				-	
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SSERA PROJECT NO: NO794MS04 PAGE: 1 of 1 BORING/WELL: AB-23 DRILLING STARTED: 12/31/87 DRILLING COMPLETED: 12/31/87 IOCATION: Sauget, IL TYPE OF SAMPLE/ CORING DEVICE: Split Spoon Core Barrel TOTAL DEPTH DRILLED: 4 ft HOLE DIAMETER: 2 in. LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING continuous INTERVAL: SURVEYED DATUM: LAND-SURFACE ELEVATION: DRILLING FLUID USED: None DRILLING METHOD: Hollow Stem Auger CONTRACTOR: John Mathes & Assoc. DRILLER: HELPER: Dave Ellis THE CANAL CLAMMED TO SEE THE CARL SECTION OF THE

PRE	EPARED 1	BY: B.	Blum	H	AMMER WEIGHT: 140 lb HAMMER DROP: 30 in.
SAMPLE NO	SAMPLE DEPTH		CORE RECVRY	BLOW	SAMPLE/CORE DESCRIPTION
	FROM	OT	]		
	0	2		3-7-	Chat $(0.5')$ , silt and clay $(0 - 0.5')$ , sand, fine,
	A4111111111111111111111111111111111111			10-10	brown, with silt (35%). Sample not retained in
	Manager 11 11 12 12 13 13 14 14 14 14 14 14 14 14 14 14 14 14 14				split spoon.
	2	4	1.5	17-13-	Sand, $2-2.75'$ , followed by a 0.5 layer cinder type
				6-5	material (0.5') above silt, gray, dark on top.
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